

Remarks/Arguments

The Rejection of Claims 1-3 and 13-19 Under 35 U.S.C. §102(b)

The Examiner rejected Claims 1-3 and 13-19 under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 3,884,037 (Barber). Applicants respectfully traverse the rejection.

Anticipation requires that all of the elements of the claim be taught within the four corners of a single reference.

Claims 1 and 13 have been amended to include the limitation that the diffusing packed material obstructs the inlet and outlet end orifices. Claim 18 has been similarly amended in that the first and fourth layers are arranged to obstruct the outlet and inlet orifices, respectively. These claim amendments are fully supported by the specification. Figures 2, 3 and 11 clearly show that the pack diffusing material obstructs the inlet and outlet end orifices. Thus, no new matter has been added.

Claim 1

Barber does not teach a layer of material blocking the orifices

Claim 1 recites: "...a diffusing pack material disposed within said housing, said diffusing pack material maintaining contact with said outlet face of said inlet end orifice, wherein said diffusing pack material obstructs said inlet end orifice and said outlet end orifice."

The fibrous material in Barber is a twisted mass that is "shaped into an annulus having an inner diameter equal to that of the inlet and outlet, thereby providing exhaust flow passage of uniform internal diameter through the muffler." (Col. 5, lines 20-30 and Figures 2 and 3). The coated material in Barber is disposed within the housing to create a reactive surface to remove harmful emissions. To accomplish the task of removing pollutants, the material in the chamber is composed of a specific set of components that are dissimilar from the composition of diffusing pack material of the present invention. Most importantly, Barber teaches a fibrous material that has a hollow core that is the same diameter as the inlet and outlet. The hollow core is essential for the proper operation of the catalytic converter described in Barber, and there is no suggestion that a layer of material that blocks the inlet and outlet ends could be used. Providing a hollow

core throughout the housing to provide an unobstructed channel through the outlet and inlet ends of the housing is not equivalent to providing a diffusing pack material that obstructs the inlet and outlet ends of the housing. Figures 2, 3 and 11 of the present application clearly show that the packing material obstructs the inlet and outlet end orifices. Barber does not teach or suggest anything other than a housing with packing material that has a hollow core that has a channel aligned with the inlet and outlet orifices. Hence, Barber fails to teach the element of a layer of packing material that obstructs the inlet and outlet orifices as recited in Claim 1.

Barber does not teach an inlet end orifice with faces

Claim 1 recites: “a housing comprising an inlet end and an outlet end, said inlet end and said outlet end each comprising at least one orifice for passing said fluid therethrough, *said inlet end orifice comprising an inlet face and an outlet face* (emphasis added);” As recited in Claim 1 and shown in Fig. 1 of the present application, inlet end orifice 18 is a separate component within housing 12, located at inlet end 14 of housing 12. In contrast, Barber teaches an inlet without any component analogous to an orifice: “...having end members 23, with an inlet at 24 and an outlet at 25. Within this casing there is a catalytic structure...” (col. 4, lines 47-50). This is clearly shown in Figure 2 of Barber. That is, Barber teaches a cap-like component with an opening. Assuming *arguendo* that the member 23 is analogous to an orifice, Barber still does not teach faces for the member.

Barber teaches a separate valve for maintaining backpressure

Claim 1 recites: “said *inlet end orifice operatively arranged to maintain a backpressure upstream* (emphasis added) of said inlet end orifice;” Thus, Claim 1 clearly recites that the inlet orifice, which is a component in the housing, maintains the backpressure. Assuming *arguendo* that muffler 12 of Barber is analogous to the housing recited in Claim 1, Barber teaches the use of valve 13, separate from muffler 12, to maintain backpressure: “There is disclosed at 13, a diagrammatic showing of a valve for regulating exhaust back pressure, shown located *downstream of the catalytic muffler* (emphasis added).” (col. 2, lines 57-60). In Fig. 1, valve 13 is shown as separate from muffler 12 and connected by a section of exhaust pipe.

Barber adds separate elements downstream of the outlet port to maintain backpressure

Claim 1 recites an orifice at the inlet to the housing arranged to maintain backpressure. Assuming *arguendo* that Barber's separate valve is analogous to an orifice integral to a housing, Barber teaches that the valve is located downstream of the muffler, i.e., the valve is associated with the outlet end of the muffler. This point is emphasized in Barber where it explains that the natural pressure in the exhaust system creates enough pressure to slow the flow of the exhaust in order to give the catalytic converter time to oxidize combustible compounds and remove other potentially harmful emissions. (See Col. 5 and 6). That is, no feature in the catalytic converter is needed to create back pressure. For those moments when pressure is too low for the catalytic converter to function effectively, the external back pressure valve can increase pressure within the catalytic converter. The device disclosed by Barber is intended to not create back pressure. In fact, the '037 patent references the importance of not increasing back pressure (see Col. 5, lines 35-44).

The Examiner has previously stated that the size of the opening in the end plate of the housing is inherently capable of creating backpressure. This cursory explanation from the Examiner is inconsistent with physical laws of fluid flow. In Barber, the inlet end 24 and the outlet end 25 are the same size, thus the pressure of the gas coming into the housing will equal the pressure leaving the housing unless some other feature restricts the flow inside the housing or outside the housing. Barber provides an external pressure valve for just those situations when the pressure along the exhaust line drops (such as when the engine is idling, see Col. 9, lines 64-68) below a level necessary to provide adequate turbulence within the catalytic converter. Without an outlet that is smaller than the inlet, Applicants contend that the pressure of the gas entering the housing and would be equal to the pressure of the gas leaving housing. Barber does have an element that generates back pressure or turbulence, namely, the helical configuration of the mass of the catalyst supporting material (see Col. 5, lines 30-43), but that element is not what is claimed to maintain back pressure in Claim 1 of the present invention. The at least one inlet end orifice is operatively arranged to maintain back pressure. Additionally, back pressure is claimed

to be maintained by the inlet end orifice, not created. This is another difference between the invention of Claim 1 and that disclosed by Barber.

For all the reasons noted above, Claim 1 is novel with respect to Barber. Claims 2 and 3, dependent from Claim 1, enjoy the same distinction with respect to Barber.

Claim 13

Claim 13 recites elements of Claim 1, specifically, regarding the diffusion material, inlet and outlet ends including respective orifices, and an inlet orifice arranged to maintain backpressure. Applicants have shown that Claim 1 is novel with respect to Barber. Thus, Claim 13 is novel with respect to Barber. Claims 14-17, dependent from Claim 13, enjoy the same distinction with respect to Barber.

Claim 18

Claim 18 recites: “a housing comprising an inlet end and an outlet end; said inlet end and said outlet end each comprising at least one orifice for passing said gas therethrough; said orifice of said inlet end operatively arranged to maintain a backpressure upstream of said inlet end orifice;

a first layer of knitted wire mesh; said first layer disposed proximate said inlet orifice and arranged to obstruct said inlet end orifice;

at second wire screen layer; said wire screen layer proximate said first layer;

a third layer of knitted wire mesh;

a fourth wire screen layer; said fourth layer disposed proximate said outlet end and maintaining contact therewith, wherein said fourth layer is arranged to obstruct said outlet end orifice.”

Applicants have shown *supra* that Barber does not teach a pack diffusing material that is arranged to block the inlet and outlet end orifices. Specifically, it fails to teach knitted wire mesh layers that are arranged to block the inlet and outlet end orifices.

Barber does not teach a layered structure

Moreover, Barber does not teach the four wire screen layers recited in Claim 18: “As desired, metal knitted mesh or screen or various combinations of metal fibers in the form of

filaments, wires, or the like, *may be disposed randomly* (emphasis added) in woven, interlaced, reticulate or wrapped forms.” (col. 4, lines 57-60). The Examiner has dismissed this argument previously, by arguing that the fiber material in Barber is composed of the same material used in the separate layers. However, Claim 18 recites a specific layered arrangement not taught by Barber. Instead, Barber teaches a helical mass that is twisted together as one unit with a hollow core through the mass. This is contrary to Claim 18, wherein the packing material is comprised of four distinct wire screen layers that are layered proximate each other. The layers are not annular shaped with a hollow core. Such a configuration is completely different than the single mass taught by Barber (see Col. 5).

The configuration recited in Claim 18 also is distinct from the helical mass of Barber because a layered packing material eliminates a step in the manufacturing process, i.e., forming the helical mass prior to inserting it into the housing. The invention of Claim 18 can be merely placed into the housing without being prefabricated into a helical mass. The structure in Claim 18 also allows the selection and placement of structural supporting layers into the housing 12 at strategic positions that will prevent the packing material from being compressed or displaced. Barber not only does not require structural supporting layers to be placed within the helical mass as is taught by Claim 18, it would be difficult to get a uniform placement of structural supporting material using the helical mass configuration that is taught by Barber. By placing different layers within the housing, Claim 18 is teaching a selection of layers process that is not explicitly or implicitly taught by Barber. Neither can Barber provide a packing material that has a horizontal striated pattern of material that is taught in Claim 18. Furthermore, Applicants have shown *supra* that Barber does not teach inlet and outlet ends including respective orifices and does not teach an inlet orifice arranged to maintain backpressure or that the packing material is non-annular.

Claim 18 is novel with respect to Barber. Claim 19, dependent from Claim 18, enjoys the same distinction with respect to Barber.

Applicants courteously request that the rejection be removed.

The Rejection of Claims 1-3 Under 35 U.S.C. §102(b)

The Examiner rejected Claims 1-3 under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 3,495,950 (Barber et al.). Applicants respectfully traverse the rejection.

Anticipation requires that all of the elements of the claim be taught within the four corners of a single reference.

Barber '950 teaches the same muffler, end members, inlet, outlet, and valve as taught in Barber '037. Applicants have shown *supra* that Barber '037 does not anticipate Claim 1. The arguments regarding Claim 1 and Barber '037 are applicable to Claim 1 and Barber '950, and for the sake of brevity are not repeated here. Therefore, Claim 1 is novel with respect to Barber '950. Claims 2 and 3, dependent from Claim 1, enjoy the same distinction from Barber '950. Applicants courteously request that the rejection be removed.

Rejection of Claims 4-12 under 35 U.S.C. §103(a)

The Examiner rejected Claims 4-12 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 3,884,037 (Barber). Applicants respectfully traverse the rejection.

In accordance with *In re Vaeck*, the prior art reference (or references when combined) must teach or suggest all the claim limitations. Applicants have shown *supra* that Barber '037 does not teach all the limitations of Claim 1. Nor does Barber suggest all the limitations of Claim 1. Therefore, Claim 1 is patentable over Barber '037. Claims 4-12, dependent from Claim 1, enjoy the same distinction from Barber '037.

Rejection of Claims 4-7 under 35 U.S.C. §103(a)

The Examiner rejected Claims 4-7 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 3,495,950 (Barber et al.). Applicants respectfully traverse the rejection.

In accordance with *In re Vaeck*, the prior art reference (or references when combined) must teach or suggest all the claim limitations. Barber '950 teaches the same muffler, end members, inlet, outlet, and valve as taught in Barber '037. Applicants have shown *supra* that

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Claim 1 is patentable over Barber '037. The arguments regarding Claim 1 and Barber '037 are applicable to Claim 1 and Barber '950, and for the sake of brevity are not repeated here.

Therefore, Claim 1 is patentable Barber '950. Claims 4-7, dependent from Claim 1, enjoy the same distinction from Barber '950. Applicants courteously request that the rejection be removed.

Conclusion

Applicants respectfully submit that all pending claims are now in condition for allowance, which action is courteously requested.

Respectfully submitted,



C. Paul Maliszewski
Registration No. 51,990
Simpson & Simpson, PLLC
5555 Main Street
Williamsville, NY 14221-5406
Telephone No. 716-626-1564

CPM/TGM
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